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ABSTRACT

This article discusses the philosophy of grading in the new secondary education professional year in the Undergraduate Pre-Service Teacher Education Program (UPSTEP) at the University of Colorado. Research and comments, pro and con, regarding different methods of grading are reviewed. The two major methods discussed are letter grades (they provide feedback and are of value in the selection of students for advanced education, but can promote cheating and unimaginative student behavior and can mix heterogeneous learning factors that have different weightings) and pass/fail grades (they make students more relaxed and provide a better learning atmosphere, but do not distinguish among students of different abilities and are used by some teachers to avoid evaluation altogether). Also considered are pass/no record (or credit/no credit) grades, written evaluations, self-evaluations, the contract system, and the mastery approach or performance curriculum. This paper recommends a pass/fail grading system or some variation of it, supplemented by other evaluation procedures. (Related documents are SP 006 875, 006 876, and 006 877.) (JA)

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Grading in the UPSTEP Secondary Education Professional Year

by

Richard D. Van Scotter

The standard letter grade system has come in for considerable criticism in recent years. The new secondary education, professional year program at the University of Colorado offers the opportunity to review the arguments surrounding the issue of grading. Interest in grading has produced a growing body of research, so that the secondary program will have substantial, if not clear cut data, on which to base decisions.

Objections to traditional grading cover a wide range of allegations. These generally include: teacher subjectivity, unhealthy competition, dependence on extrinsic rewards, restriction of individually motivated learning, and a variety of detrimental side effects such as anxiety, conformity, and mental stress. Much research supports these allegations. This, however, does not necessarily suggest that letter grading be abandonned. Grading as a system may be justified, while the procedures used to determine grades require revising. Complicating the issue is the tentative finding that alternative systems, e.g. Pass/Fail grading, are of questionable reliability and academic soundness. The data compiled herein suggests that all grading systems have strengths and weaknesses.

The unique nature of the new secondary education program demands that the various grading systems be carefully evaluated in terms of the program needs. This uniqueness includes:

SP 006 874

1. A group of upper division or graduate level students in pursuit of a relatively common professional training.
2. A self contained or a block program making up the entire formal education experience of the students for an academic year.
3. A program structure, or lack of structure, that can be described as personalized, experiential, modular, and individually negotiated, in contrast to a course-based program.
4. A mixture of traditional classroom, small group discussions, self-taught, public school, and community learning experiences.

The research and other data pertaining to grading are quite extensive. Therefore this survey is restricted to those findings judged pertinent to the new program. In turn, the pecularities of the new program necessarily will effect the validity and applicability of any particular data. That is, the merits of any grading system must be judged in terms of its fitness to the new program. There was no attempt to include all grading systems in this review. Where the impracticality or infeasibility of a system was clearly evident, it was neglected, e.g. student conferences.

Letter Grades

The literature on letter grading reveals a marked upsurge in the number of studies since the early 1960's. Much of the research has addressed itself to the objections of letter grading.

One major objection is that letter grades are an inadequate assessment of student competence and are not comparable across schools, departments, and teachers. The multi-faceted nature of academic performance is often described as a major problem in interpreting grades. Grades cover a variety of learning factors, including in addition to intellectual capability, industriousness, responsiveness to instruction, pleasantness of manner, and physical

attractiveness (Ebel, 1965; Trow, 1968). Teachers vary in the weight they give to these various factors in learning (Axelrod, 1964). Student grade point averages over time in a particular college remain relatively constant despite changes in academic ability (University of California at Berkeley, 1965). At most colleges a majority of students receive C's, regardless of the established mean ability of the students from college to college (Baird, Munday and Feister, 1969).[1] Girls usually receive higher grades than boys of equal ability in achievement (Caldwell and Hartnett, 1967). The reliability of grading an assignment for a single teacher over time is extremely low (Tieg, 1952).

These variations in grading, however, are systematically related to teacher attitudes. It is unlikely that any form of teacher evaluation can be free of this subjectivity; the teacher inclined to give low grades will also tend to describe student performances as unsatisfactory or unacceptable. Letter grades themselves are not at fault, rather it is the manner, skill and objectivity in which they are administered (Thorndike, 1969).

A second major objection to grades states that marks have little relationship to important educational objectives, focusing primarily on more discernable cognitive achievements. Again it can be countered that this criticism addresses not on the act of grading but upon the evidence on which grades are based (Thorndike, 1969). This suggests that assessment procedures carefully delineate the variety of learning behaviors that a program considers appropriate.

A third basic criticism of grading states that marks have limited value as a medium of communication between schools, students and parents. In response it can be said that grades reflect only certain educational factors (Thorndike, 1969). Other reporting procedures are necessary to provide evaluation information for students and parents; grades as such should not be eliminated.

The multi-dimensional nature of student learning and growth means that every important factor should not only be evaluated but reported separately. It is a poor procedure that averages unlike

[1] This is not true when grades for Education courses are taken alone. The mean grade received by education students is notably higher.

commodities, e.g. it is necessary to separate achievement grades from various non-cognitive aspects of learning (Stanley and Hopkins, 1972). The multi-dimensional nature of learning also implies that combining separate marks into a grade point average (GPA) may have little justification (Warren, 1970). A GPA is valid only when grades can be said to reflect similar learning behaviors. The summarizing of student performances (grades or GPA) should be related to the purposes that grades serve. If particular learning behaviors can be clustered into a single factor in terms of its use, performances may be unidimensionally reported.

There is considerable research related to the purposes grades are intended to serve. One of the first-mentioned purposes is selection for future work or careers. A substantial majority of the studies indicate only a modest correlation between academic grades and future job success. Work experience and specific capabilities prove to be better indicators of success (Raimi, 1967; Hoyt, 1965). This relationship holds as well for predicting the success or effectiveness of future teachers; a summary of 33 studies showed that supervisor rating of teachers had a median correlation of .09 with college grade point averages (Barr, 1961). The data, however, needs to be interpreted carefully. More accurate predictors of teacher success have not been found. In fact, a substantially higher correlation can not be expected because teacher success correlates relatively low with itself. For example, Walberg (1967) found that supervisors' ratings of teachers correlated only .21 with principals' ratings. The definition of a "successful teacher" is critical in interpreting any findings. A wide range of criteria could be submitted to describe successful teachers; grades may or may not relate to it depending on the criteria for grading itself. Any program is obliged to clearly establish its outcome objectives. If it could be assumed that the criteria are based on these objectives, grades should be a reasonable predictor of teacher effectiveness.

A second major reason advanced for the purpose of grades concerns the selection of students for advanced education, notably graduate study. Undergraduate grades predict first year grades in graduate school and professional schools with modest accuracy; most of the correlations range between .10 and .50, clustering around .30 (Warren, 1970). As schooling continues this correlation between undergraduate and graduate performance delines substantially, eventually becoming negligible.

A third mentioned purpose of grades is the informational function it serves students. Students, however, use a variety of information to assess their level of performance and do not necessarily consider grades as useful feedback in this function (Stallings and Leslie, 1970). The summative nature of grades occuring at the end of a course, works against its being useful feedback. Feedback should be related to the processes as well as the products of learning, differentiating between the various kinds of learning and indicating directions for future study. It is most effective when considered in relation to the student's previous accomplishments and capabilities; it has limited usefulness in relation to other students who do not constitute a useful reference group (Warren, 1970).

A fourth justification offered for grades is the positive motivational effects it has on student learning. Research, however, relates that different students respond differently to the pressure of grades. Some students need the direction, structure and sense of accomplishment that grades provide, while others find that grades restrict their learning or produce various problems (Birney, 1964). One of these problems is the occurrance of anxiety, particularly with those students who tend to become anxious under ego involving situations and who judge themselves as less capable (Phillips, 1962).

Another side effect related to grading is the existence of cheating or dishonesty. Various studies indicate that anywhere from 50% to 80% of the students questioned, admit to having cheated during college in some distinct form, such as plagerizing, using crib notes and copying on examinations (Bowers, 1964; Knowlton, 1967).

Grades also may produce negative motivational relationships, i.e. the "self-fulfilling prophecy" syndrome. Students who achieve higher grades tend to see themselves as more competent, and continue to acquire higher grades; the opposite holds for the self-concept image and achievement prospects of students who earn lower grades. Similarly teachers tend to grade a student higher if the teacher has reason to believe the student did high quality work in the past; teachers are inclined to give lower grades to those students who have poor past performances (Rosenthal, 1969).

The motivational effects of grades are not clear. Sometimes the effects are negative, other times they are positive. The tentative conclusion is that grades play only a small part in motivating students to learn. The issue of motivation in grading, however, can not be separated from other forms of evaluation, e.g. pass-fail systems. The relative merits of grading on motivation will be continued in the next section.

The following is a summary of advantages and disadvantages associated with letter grades.

Pros	Cons
1. Grades provide an administrative convenience in selecting students both for employment and future educational positions.	1. Grades tend to represent a mixing of heterogeneous learning factors with different weightings.
2. Grades provide feedback for some students.	2. Grades tend to divide students into recognizable, thus discriminatory groups.
3. Grading itself is not at fault, rather the manner in which grades are determined.	3. Grades promote cheating as a result of the pressure to perform well on record.
4. Alternative evaluation systems have not proven to be any more effective.	4. Grades tend to foster more dependent, conforming, and less imaginative student behavior.
	5. Grades tend to pose threatening situations which have an adverse effect on the learning of some students.

Pros	Cons
	6. Most students who have experienced alternative forms of grading, support the elimination of letter grades or the retention of alternative systems.

Pass-Fail Grading[2]

Several studies indicate that students put less effort, i.e. allocate less study time, into pass/fail courses (Karlins, 1969; Feldmesser, 1969; Freeman, 1969). Other studies conclude that academic achievement as measured by GPA declines under pass/fail conditions (Gold, 1971; Stallings and Smock, 1971). These studies were conducted in option pass/fail situations, rendering the findings less conclusive. Under these conditions one would expect the students to take advantage of the opportunity to relieve pressure on graded courses. In fact one of the purposes of an optional Pass/Fail system is to offer students more control over the allocation of their study time. In addition, optional Pass/Fail systems typically exclude courses in major fields; it is not uncommon for a student to devote less time to non-major subjects. There is no evidence indicating a decline in the quantity or quality of student effort in those institutions that have a complete Pass/Fail grading system. (Murphy and Raushenbush, 1960; Committee on Educational Policy, 1970).[3]

Evidence surrounding the original premises of pass/fail grading is erratic. A study of Pass/Fail programs in six liberal arts colleges indicated a few snags: 1) many students, even though carefully selected had difficulty managing their dependence and freedom in the absence of direction. In all cases though, the students did receive some form of evaluation on their work; 2) the primary source of discomfort in the programs came not from the lack of structure but from the ambiguity

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2 One variation to Pass/Fail grading is Modified Pass Fail which adds a category to denote outstanding work. This is called honors/ pass/fail.

3 These schools include Sarah Lawrence College, the University of Santa Cruz, one department of the University of California Medical School, San Francisco and the University of Kansas Medical School.

typically present in most innovations; 3) students expressed a concern for self-evaluation and asked that appropriate information come from a variety of sources (Cole, 1966). In addition the argument that pass/fail evaluations foster instrinsic motivation is not clear. If self-assessment is dependent upon outside standards, intrinsic satisfaction necessarily is dependent on extrinsic sources.

One primary reason cited for Pass/Fail grading is to encourage students to take courses that they otherwise would not. A study of students in Pass/Fail programs at Dartmouth, Princeton, Wellesley, and the University of Michigan indicated that 75-85% of the students said they would have taken the courses anyway (Cromer, 1969; Feldmesser, 1969; Karlins, 1969). A second major reason for initiating Pass/Fail systems is to reduce the amount of student anxiety associated with marks. Research clearly substantiates this claim, though these studies were conducted after the fact when the students may be inclined to review their experiences more casually. Surveyed students, however, inevitably encouraged the continuation and expansion of Pass/Fail programs (Cromer, 1969; Karlins, 1969).

Several other reasons are usually cited for implementing Pass/Fail systems. One of these is to shift student efforts from grade getting to learning. Another reason is to allow the teacher to function as a mentor to, rather than a judge of students. A final reason is to give students better control over the allocation of their study time. Only the latter of these three is supported by evidence, and this indicates that students take time away from pass/fail courses (Karlins, 1969; Feldmesser, 1969; Ericksen, 1967).

A problem often associated with Pass/Fail or other alternative grading systems is the difficulty in selecting students for gradutae schools. This, in turn, it is reasoned, presents a problem for the prospective graduate student. At this point there is little evidence to substantiate the objection; the University of Santa Cruz found that of the students going on to graduate school, only 9% felt that the Pass/Fail system presented a problem and another 35% were uncertain of its effects (Pitcher and Bosler, 1970).

A summary of the advantages and disadvantages of the pass/fail option based on evidence now available is presented below.

Pros	Cons
1. Students are more relaxed, less anxious and less competitive.	1. Some teachers use Pass/Fail grading as an excuse to avoid all evaluation, depriving students of any potential feedback.
2. There is a better learning atmosphere in that students are willing to take risks, disagree with the teacher and explore the subject in their way.	2. The passing grade does not distinguish between students of different abilities.
3. The reasons for cheating or apple polishing are substantially reduced.	3. Free from the pressures of traditional grading, some students do less work than usual.
4. Free from the pressures of traditional grading, some students do even more work than usual.	4. It may prove difficult to clearly state and measure the level of mastery needed to earn a passing grade.
	5. A student in danger of failing still is under all the pressures normally associated with traditional grading.

Other Alternatives to Traditional Grading

Research related to other alternative grading systems is limited. This section is largely a summary of the comments presented in Wad-Ja-Get by Kirschenbaum, Simon and Napier, (1971).

Pass/No Record (or Credit/No Credit) grading. This system is precisely the same as Pass/Fail, except the two categories are pass and no record. It is important in the transcripts or other records that "no record" or "no credit" does not denote failing.

The advantages of the Credit/No Credit system are the same as those for Pass/Fail with one additional advantage, "no credit" does not denote failure; students simply do not get the credit for the

course. With this fear of failure absent, most border line students do not feel a need to cheat or con their way to a passing grade. The disadvantages of the system are the same as those for Pass/Fail, except for item #5.

Another interesting grading method related to Pass/Fail and Pass/No Record system is a devise developed by the Department of Microbiology of the University of California Medical School. The department faculty reasoned that the work of a prospective physician, at least in their area, either was "clearly" acceptable or "not so clearly" acceptable. As a result they developed a Clear/Not Clear grading system. Students receiving a "not clear" grade were allowed to continue work in their area until it was evident that they either were able or unable to meet the standards.

Written Evaluations. Written evaluations of students can be provided in addition to or in lieu of grades or other forms of evaluation. Teacher written evaluations can be combined with a student written self-evaluation, both becoming part of the student's record. In addition the Clear/Not Clear alternative described above might best be used in this context where additional comments can be provided. Written evaluation forms can include spaces for faculty members to discuss at random the "Strengths", "Weaknesses" and "Recommendations for Improvement". Based on the previously discussed findings it would seem imperative that written evaluations specify the various dimensions of program mastery to be evaluated.

Advantages of written evaluations:

1. The potentially useful information they provide to students, parents and prospective employers.

2. The encouragement they offer teachers to think more of each student as an individual, rather than a set of numbers in a grade book.

3. The fostering of attention to student needs, better school-community relations and parental involvement.

Disadvantages of written evaluation:

1. The possibilities for even more subjective evaluations of students; teachers might unconsciously minimize or maximize the strengths or weaknesses of students.

2. The difficulty of writing useful individualized evaluations; teachers might rely on vague terms such as "excellent", "fair", "poor", "needs improvement" and "good workers".

3. The added time commitment probably demanded of teachers.

Self Evaluation. Self-evaluation as distinguished from self-grading refers to progress reports that students make on their own work, either in writing or in conferences with faculty members. Self-grading could be a natural adjunct to some other form of teacher evaluation, but presumably self-evaluation would preceed any form of self-grading.

Self-evaluation includes several advantages:

1. It is an important learning experience for students to evaluate their own strengths and weaknesses.

2. Most teachers who use self-evaluation report that students are fair, objective and often more demanding than the teacher.

3. Self-evaluation tends to encourage students to desire more responsibility for setting education goals and means of achieving them, and to encourage teachers to allow the students to do this.

There are several disadvantages of self-evaluation:

1. Students may come to take self-evaluation less seriously as the novelty wears off.[4]

2. When students disrespect a teacher, they tend to abuse the opportunity to grade themselves.

3. When accompanied by enormous pressure for high grades, self-grading makes honest self-evaluation extremely difficult.

The Contract System. The contract system can be individually prescribed, teacher prescribed for the individual, or teacher prescribed for a group of students. If a student under contract

[4] Russell (1953) found that overtime student self-assessment becomes less accurate

does a certain type, quantity and, ideally, quality of work, he receives credit for fulfilling the contract.

The advantages of the system include:

1. A reduction in anxiety as the result of the student knowing from the beginning exactly what was expected of him.

2. A reduction in the subjectivity of grading.

3. The encouragement of diversity in the classroom and the opportunity for the students to set their own learning goals.

The disadvantages of the system include:

1. The potential overemphasis of the quantity of work performed.

2. The difficulty of measuring the quality of diverse types of work students may contract to do.

3. The danger of teachers being too ambiguous in attempting to state the qualitative distinctions between grades.

Mastery Approach or Performance Curriculum. The mastery approach has been described not as an alternative to grading but rather the traditional grading system done effectively. The mastery approach begins with the setting of operational or behavioral objectives. The instruction then is organized into units of study, arranged in a logical sequence with each unit serving as a building block to the unit succeeding it. Instruments to measure the extent of content mastery are developed and administered to the students as appropriate. Levels of mastery or proficiency are designated for each unit of learning. As applied to the new secondary program, students would be free to proceed at their own pace in covering the prescribed or negotiated units of learning.

The advantages of this system are:

1. A student's grade becomes more meaningful to him because he is tied to a performance level and the same grade means the same thing in different learning units.

2. Much of the teachers subjectivity in grading is eliminated.

3. When student's know where they are heading, they are likely to get there faster.

4. The focus of the system is on success, not failure.

5. The teacher or program is held accountable for stating objectives and providing resources to help students achieve these goals.

6. The system may generate cooperation and better morale among teachers.

The disadvantages of the system are:

1. To utilize the mastery approach probably requires considerable skill on the part of the faculty.

2. A performance curriculum may limit the freedom of imaginative teachers.

3. It is possible for teachers to use the mastery approach without allowing the students to pursue their own ways of achieving their levels of proficiency.

4. Even when students have freedom to choose how they will achieve the program goals, the mastery approach discourages them from setting and working toward their own goals.

5. The total faculty must be involved in setting up performance criteria.

Recommendations for the New Program

At face value, evidence supporting any particular evaluation system is at best tenuous. Rather than conclude that one system is as good as another, it would be more accurate to declare that all systems have various shortcomings. The merits of any grading system must be judged in the context of a particular program.

In terms of the new professional year program, the traditional letter grading does not appear appropriate. This curriculum would present almost insurmountable tasks for sound evaluation. For one thing, assessing individual modules would produce either an overload of grades, or an averaging of unlike information. Secondly, it would be difficult to establish measurable criteria on which to precisely judge student performance. Thirdly, many student behaviors or instructional factors would prove inseparable for grading purposes.

It is also true that grades or GPA show little relationship with future success in teaching, though as indicated this fact should be treated cautiously. In addition, the findings pertain only to the relationship with total undergraduate GPA; they do not apply to letter grade achievement in teacher education programs. Eliminating grades could present a pitfall for teacher placement, in that schools would depend on undergraduate grades, minus professional education achievement, to assess the merits of candidates.

A Pass/Fail system, or some form of it, in the new secondary program, would escape a major drawback found associated with the system. The professional year concept rules out students being able to short shrift Pass/Fail courses in favor of other studies. Students also would be in the position to take advantage of the opportunity to concentrate completely on a task, free from internal constraints (grades) and persuasion (other courses). In addition, many learning experiences in the program probably would be based on cooperative efforts among students; the competitive atmosphere of grading could inhibit this cooperative spirit. This, however, does not relieve faculty or students from establishing criteria and providing means to measure levels of mastery on the instructional units. A modification of the performance curriculum approach could be helpful. The bargaining power of students in negotiating their learning sequence, however, should be emphasized if the rigidity of this process is to be avoided.

Without discretely defined courses on which to make pass/fail assessments, grading could be administered either on an instructional unit (Module) basis or at prescribed time intervals during the program. Nevertheless, an end of year summative assessment of all students' work would be necessary, unless the option of summer school was open for those not making satisfactory progress during the academic year.[5]

The secondary program could consider a variation of the Pass/Fail system, i.e. Credit/No Credit or Clear/Unclear grading. It might prove impossible to state with assurance that a student should fail.

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[5] This option, it might be added, would provide summer employment for desperate faculty members.

However, if learning criteria are specific, a discrete pass/fail separation would be justified.

Finally, it is recommended that the Pass/Fail system, or some variation of it, be supplemented by other evaluation procedures. These would include, 1) a procedure for self-evaluation and 2) a form of descriptive evaluation. Self-evaluation would serve to involve students in establishing learning criteria for the program and to keep them constantly aware of their progress. Descriptive evaluation could take place in either a student conference setting or in the form of written assessment, reflecting both faculty and student evaluative information.

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